Claims:

What is claimed is:

1. A driver having a current control device for a voice coil motor in a disk drive, comprising:

a sensor to sense a coil current in said voice coil motor;

a transconductance amplifier to detect an error current from said coil current and a command current; and

a compensator to integrate said error current into said coil current.

2. The driver of claim 1, further comprising a force couple created by said current in said voice coil motor.

3. The driver of claim 1, further comprising a current sense amplifier coupled to said transconductance amplifier to amplify a voltage across said sensor.

4. The driver of claim 1, wherein said voice coil motor includes a first coil motor and a second coil motor.

5. The driver of claim 4, wherein said first coil motor and said second coil motor are coupled in series such that said coil current flows through both coil motors.

6. The driver of claim 1, wherein said compensator includes a capacitor.

7. The driver of claim 6, wherein said compensator includes a resistor.

8. The driver of claim 1, further comprising a driver amplifier to supply said coil current, said driver amplifier coupled to said compensator.

9. The driver of claim 1, wherein said sensor includes a sense resistor.

10. The driver of claim 1, wherein said command current is received at said driver from a microcontroller.

11. The driver of claim 1, further comprising said compensator coupled to said transconductance amplifier, said compensator including a capacitor.

12. The driver of claim 12, wherein said integrator also includes a capacitor.

13. The driver of claim 12, wherein said compensator is coupled to a gain buffer.

14. A method for tracking a disk using a voice coil motor coupled to a driver, comprising:

sensing a coil current in said voice coil motor;

determining an error current from said coil current and a command current; and

integrating said error current into said coil current.

15. The method of claim 14, further comprising amplifying said coil current.

16. The method of claim 14, further comprising receiving said command current at said driver.

17. The method of claim 14, further comprising inducing a magnetic field in said voice coil motor.

18. The method of claim 14, wherein said sensing step includes sensing a voltage and determining said coil current from said voltage.

19. The method of claim 14, further comprising amplifying said coil current.

20. The method of claim 14, wherein said determining step includes determining said error current with a transconductance amplifier.

21. The method of claim 20, wherein said determining step includes comparing said coil current and said command current at said transconductance amplifier.

22. The method of claim 14, further including compensating for said error current by delaying said integrating step.

23. A current control device for a voice coil motor driver, said voice coil motor driver coupled to a microprocessor to receive commands specifying a command current for a voice coil motor, comprising:

an amplifier to drive said voice coil motor with a coil current; and

a compensator circuit to integrate an error current with said command current to generate said coil current, wherein said error current is detected with a sensor coupled between said amplifier and said voice coil motor.

24. The current control device of claim 23, further comprising a transconductance amplifier to detect and calculate said error current.

25. The current control device of claim 23, wherein said error current correlates to a voltage across said sensor.

26. The current control device of claim 23, wherein said sensor is a resistor.

27. The current control device of claim 23, further comprising a current sense amplifier coupled between said sensor and said integrator to amplify a voltage across said sensor.

28. The current control device of claim 23, wherein said amplifier is coupled to a set of transistors to provide said coil current.

29. A driver having a current control device for a voice coil motor, comprising:

an amplifier to drive said voice coil motor with a coil current, said coil current flows from one terminal of said voice coil motor to another terminal, wherein both terminals are coupled to said driver;

a sensor to sense said coil current in said voice coil motor, wherein said sensor is coupled between said amplifier and said voice coil motor;

a current sense amplifier to amplify a voltage across said sensor, wherein said voltage correlates to said coil current;

a transconductance amplifier coupled to said current sense amplifier to receive said voltage and a command current, wherein said transconductance amplifier calculates an error current;

an integrator coupled to said transconductance amplifier to integrate said error current into said command current to determine said coil current.

30. A driver having a current controller for a voice coil motor in a seek mode, comprising:

a set of transistors coupled to said voice coil motor by a center tap, said set of transistors to supply a coil current having a waveform to said center tap;

a current sense amplifier to detect said coil current;

a comparator to shape a command current waveform to said coil current waveform; and

a bipolar switch control to receive said command current waveform and to saturate said set of transistors.

31. The driver of claim 30, wherein said voice coil motor includes a first coil motor and a second coil motor coupled to said center tap.

32. The driver of claim 31, wherein said first coil has a first current and said second coil motor has a second current.

33. The driver of claim 32, wherein said coil current is the sum of said first current and said second current.

34. The driver of claim 30, when said set of transistors includes a first transistor and a second transistor.

35. The driver of claim 30, wherein said set of transistors includes dynamic MOS transistors.

36. The driver of claim 30, wherein said command current waveform has a duty cycle such that said bipolar switch control is turned on and off according to said duty cycle.

37. The driver of claim 30, wherein said command current is received from a microcontroller.

38. A method for controlling a voice coil motor accessing a track on a magnetic disk with a driver, comprising:

supplying a coil current to said voice coil motor;

amplifying said coil current; and

shaping a command current waveform according to said coil current.

39. The method of claim 38, further comprising receiving said command current waveform at a bipolar switch control.

40. The method of claim 39, further comprising saturating a set of transistors coupling said bipolar switch with said voice coil motor.

41. The method of claim 40, further comprising turning said transistors on and off with said bipolar switch.

42. The method of claim 38, wherein said supplying step includes supplying said coil current to a center tap coupling said voice coil motor to said driver.

43. The method of claim 38, wherein said amplifying step comprises amplifying said coil current with a current sense amplifier.

44. A current control device within a driver for controlling a voice coil motor to seek a track on a storage media, comprising:

a coil current supplied to said voice coil motor along a center tap coupled to said driver; and

a comparator to shape a waveform of a specified command current in accordance with a waveform of said coil current, wherein said command current drives a bipolar switch coupled to said center tap.

45. The current control device of claim 44, further comprising a current sense amplifier to detect said coil current within said voice coil motor.

46. The current control device of claim 44, further comprising a set of transistors coupled to said bipolar switch and said center tap, wherein said set of transistors are turned on and off to supply current to said center tap.

47. The current control device of claim 44, wherein said center tap supplies a first coil motor current and a second coil motor current to a first coil motor and a second coil motor within said voice coil motor, such that coil current is about equal to the sum of said first coil current and said second coil current.

48. A driver having a current control device for controlling a voice coil motor during a seek mode, comprising:

a current sense amplifier to detect a coil current within said voice coil motor, wherein said coil current is supplied by a center tap coupled to said driver and said voice coil motor;

a current command to specify a command current having a waveform;

a comparator coupled to said current sense amplifier to receive said current command and shape said command current waveform according to a waveform of said coil current;

a bipolar switch coupled to said comparator to turn on and off a set of transistors to supply said command current to said center tap.

49. The driver of claim 48, wherein said set of transistors comprises dynamic MOS transistors.

50. A driver for controlling a voice coil motor during a retract mode, said voice coil motor having a first coil motor and second coil motor, comprising:

a sensor to sense a velocity voltage across said second coil motor;

an error amplifier to calculate a differential between said velocity voltage and a command voltage; and

a retract amplifier to compensate said command voltage with said differential.

51. The driver of claim 50, further comprising a differential amplifier coupled to said error amplifier, wherein said differential amplifier detects said velocity voltage across said sensor.

52. The driver of claim 50, wherein said retract amplifier is coupled to said compensator, wherein said retract amplifier drives said first coil motor at said command voltage.

53. The driver of claim 52, wherein said retract amplifier receives said command voltage from said compensator, and supplies a current to said first coil motor.

54. The driver of claim 52, further comprising a set of transistors coupled to said retract amplifier.

55. The driver of claim 50, wherein said first coil motor comprises coil windings.

56. The driver of claim 50, wherein said second coil motor comprises coil windings.

57. The driver of claim 50, wherein said retract amplifier is turned on and off.

58. A method for controlling a voice coil motor having a first coil motor and a second coil motor with a driver during a retract mode, comprising:

detecting a velocity voltage with said second coil motor;

determining a differential voltage between said velocity voltage and a command voltage; and

compensating said command voltage with said differential voltage.

59. The method of claim 58, wherein said detecting step includes using a differential amplifier coupled to said second coil motor.

60. The method of claim 58, further comprising applying a current correlating to said command voltage to said first coil motor.

61. The method of claim 58, wherein said compensating step includes using a retract amplifier coupled to said voice coil motor.

62. The method of claim 61, further comprising saturating a set of transistors to supply a current from said retract amplifier to said voice coil motor.

63. The method of claim 61, further comprising turning said retract amplifier on and off.

Add A11